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Frank Schmidt

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EXAMINER

VORTMAN, ANATOLY

ART UNIT

PAPER NUMBER

2835

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |                                       |  |
|------------------------------|--------------------------------------|---------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/596,829 | <b>Applicant(s)</b><br>SCHMIDT ET AL. |  |
|                              | <b>Examiner</b><br>ANATOLY VORTMAN   | <b>Art Unit</b><br>2835               |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 12 and 14-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12 and 14-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 June 2009 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Reply Under 37 CFR 1.111***

1. The submission of the reply filed on 06/04/09 to the non-final Office action of 02/04/09 is hereby acknowledged. Claims 12 and 14-24 are pending in the instant application.

***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “insulating fiber has a substantially flat cross section” recited in claim 23, or “the “insulating fiber configured to have a relatively flat cross section” recited in claim 24 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the

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renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

3. Claims 12, 23, and 24 are objected to because of the following informalities: claim recites incorrect clause: "a fusible wire wound about the core a plurality of windings". The following clauses should be used instead: "a fusible wire wound about the core as a plurality of windings" or "a fusible wire wound about the core forming a plurality of windings", or similar. Further, claims 23 and 24 recite the terms: "substantially flat" and "relatively flat", respectively. The terms produce indefiniteness, since the terms are not defined by the claims and the specification does not provide a standard for ascertaining the requisite degree. On the contrary, the specification states that: "the insulating fiber deforms (from an initially approximately circular cross section) during winding onto the core and is, for instance, flattened" (see section [0008]), or "The insulating fiber initially has an approximately circular cross section and deforms during the winding process to form a flattened strip, the width of which is approximately twice the diameter of the fusible wire 2" (see section [0014]). There is no teaching in the specification or in the drawings that said insulating fiber is "substantially flat".

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by US/4,523,172 to Drothen et al. (Drothen).

Regarding claim 12, Drothen disclosed (Fig. 2-3) a fusible conductor for a fuse element, said fusible conductor comprising: an electrically insulating core (6); a fusible wire (7) wound about the core (6) as a plurality of windings; and an electrically insulating fiber (10, 11) wound about the core adjacent to each of said plurality of fusible wire windings such that the insulating fiber is fixed in position adjacent each winding of the fusible wire.

6. Claim 24, and alternatively, claim 12 are rejected under 35 U.S.C. 102(b) as being anticipated by US/ 3,486,155 to MCCAUGHNA.

Regarding claim 12 and, as best understood, regarding claim 24, MCCAUGHNA disclosed (Fig. 1, 2) a fusible conductor for a fuse element, said fusible conductor comprising: an electrically insulating core (12); a fusible wire (11) wound about the core as a plurality of windings; and an electrically insulating fiber (10) with relatively flat crosssection wound about the core adjacent to each of said plurality of fusible wire windings such that the insulating fiber is fixed in position adjacent each winding of the fusible wire.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 14-23, are rejected under 35 U.S.C. 103(a) as being unpatentable over US/4,523,172 to Drothen taken alone.

Regarding claims 14-16, Drothen disclosed all as applied to claim 13 above, and further, that both fusible wires and one insulating fiber have an approximately circular cross section (Fig. 3b), but did not specify the ranges for the ratio of the diameter of the fusible wire to that of the insulating fiber (i.e. between 1/3 and 3, or between 1 and 3), and for the spacing between the turns of the fusible wire (i.e. 0.2 to 2 times the diameter of the fusible wire).

It would have been obvious to a person of the ordinary skill in the fuse art at the time of the invention to select any appropriate ranges for the aforementioned ratio and for the spacing, including as claimed, or any suitable value within said claimed ranges, in order to achieve the desired mechanical and electrical properties of the fusible conductor, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Further, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). All claimed elements and methods have been known in the prior art at the time of the invention, and one skilled in the

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fuse art could have modified the elements as claimed by known methods with no change in their respective functions, and the modification would have yielded predictable results to one of ordinary skill in the art at the time of the invention. *See KSR International Co. v. Teleflex Inc.*, 550 U.S.\_\_\_\_, 82 USPQ2d 1385 (2007).

Regarding claim 17, Drothen disclosed that the spacing between the adjacent turns is smaller than the diameter of the fusible wire (Fig. 5).

Regarding claim 18, Drothen disclosed that the outer surface of the wound fusible wire (7) projects beyond the outer surface of the insulating fiber (10, 11) (Fig. 5).

Regarding claim 19, Drothen disclosed that the core (6) has a circular cross section and the cross sectional dimensions of the insulating fiber (10, 11) are smaller than the diameter of the core (Fig. 3b, 4, and 5).

Regarding claims 20-22, Drothen disclosed all as applied to claim 12, but the specific materials the insulating fiber and the core are made of (i.e. glass or ceramic fibers).

The glass and ceramic fibers have been well known in the fuse art at the time of the invention as good insulating materials. Therefore, it would have been obvious to a person of the ordinary skill in the fuse art at the time of the invention to select any appropriate well known insulating materials (including as claimed) to make said insulating fiber and core of the fuse of Drothen, in order to achieve the desired mechanical and electrical properties of the fusible conductor, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. All claimed elements and methods have been known in the prior art at the time of the invention, and one skilled in the fuse art could have modified the

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elements as claimed by known methods with no change in their respective functions, and the modification would have yielded predictable results to one of ordinary skill in the art at the time of the invention. See *KSR*, supra.

Regarding claim 23, Drothen disclosed that said insulating fiber (11) is substantially flat (Fig. 3b). Alternatively, it would have been obvious to a person of the ordinary skill in the fuse art at the time of the invention to select any suitable shape for said insulating fiber in order to achieve desired mechanical / electrical characteristics of the fusible conductor, since the rational that a particular shape is a design choice may be found in legal precedent: *In re Dailey*, 357 F.2d669, 149 USPQ 47 (CCPA 1966).

### ***Response to Arguments***

9. Applicant's arguments have been fully considered but they are not persuasive. The gist of the Applicant's arguments regarding the Drothen reference (US/4,523,172) is that, allegedly, "The fusible element 7 is never adjacent a fusible wire of a subsequent winding. Rather, the insulating fiber 10 is always adjacent another insulating fiber 10 along each of the windings". Examiner directs the Applicant's attention to the fact that the independent claim 12 is broader than argued. The claim does not recite that the fusible element is adjacent a fusible wire of a subsequent winding, rather claim 12 recites that "a fusible wire wound about the core a plurality of windings; and an electrically insulating fiber wound about the core adjacent to each of said plurality of fusible wire windings such that the insulating fiber is fixed in position adjacent each winding of the fusible wire". The aforementioned features are clearly met by the device of



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Drothen (see body of the rejection above). Further, Examiner would like to direct the Applicant's attention to the fact, that in the device of Drothen the insulating fiber (10, 11) is always adjacent to fusible wire (7) along the entire length thereof, and therefore is "wound about the core adjacent to each of said plurality of fusible wire windings such that the insulating fiber is fixed in position adjacent each winding of the fusible wire", as recited in claim 12 of the instant application.

Furthermore, regarding the McCaughna reference, Applicant contends that:

"McCaughna does not disclose the configuration of a wire, insulating fiber, wire, insulating fiber, etc.". Again, the aforementioned independent claim 12 is broader than argued. There is no aforementioned language in claim 12. Further, similarly to the Drothen's reference, in McCaughna the insulating fiber (10) is always adjacent to fusible wire (11) along the entire length thereof, and therefore is "wound about the core adjacent to each of said plurality of fusible wire windings such that the insulating fiber is fixed in position adjacent each winding of the fusible wire", as recited in said claim 12 of the instant application.

Furthermore, Applicant contends that, allegedly, "Neither Drothen nor McCaughna discloses that the insulating fiber is adjacent to and between each of the plurality of fusible wire windings as recited in new claim 23". Firstly, there are no such limitations in claim 23. Evidently Applicant was referring to the new independent claim 24. Secondly, the new independent claim 24 does not contain the aforementioned limitations either. Claim 24 just broadly recites: "an insulating fiber adjacent to each of said plurality of fusible wire windings". There are no limitations "between each of the plurality of fusible wire windings", as alleged by Applicant. Again, the claim is broader than argued.

In view of the above, the rejection is hereby maintained.

### *Conclusion*

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANATOLY VORTMAN whose telephone number is (571)272-2047. The examiner can normally be reached on Monday-Thursday, between 10:00 am and 8:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Jayprakash Gandhi can be reached on 571-272-3740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Anatoly Vortman/

Primary Examiner, Art Unit 2835